OL-072 Process development of an affordable bivalent conjugate vaccine against the two major causes of enteric fever, *Salmonella typhi* and *Salmonella paratyphi* A

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Background: A recent IVI study in Kolkata, India, found that 24% of enteric fever episodes were due to *S. paratyphi* A. Estimates indicate that the incidence of enteric fever, in India, due to *S. paratyphi* A is 2.2 million cases per annum. Vi based vaccines only protect against typhoid fever, thus there is a need for a bivalent vaccine that protects against both *S. typhi* and *S. paratyphi* A.
Methods: IVI transferred its high yield, high recovery technology for Vi and Vi conjugate production to Shantha Biotechnics in 2009.
A high yielding fed batch fermentation system for *Salmonella paratyphi* A was first developed. The Lipopolysaccharide was separated from the cells using micro and ultrafiltration then detoxified by acid hydrolysis to release O specific polysaccharide (OSP) from the Lipid A. The OSP was further purified by precipitation of contaminating Lipid A, proteins and nucleic acid, concentrated by ultrafiltration then sterilized by 0.2 mm filtration. The process developed uses equipment that is scalable and cGMP compliant thus it is anticipated that the technology transfer and scale up to a manufacturer will not be overly complicated.
Results: OSP from *S. paratyphi* A has been successfully purified and the final bulk contains less than 1% of contaminating nucleic acid and protein, and very low endotoxin (by LAL) values. The purified OSP has been used to prepare a series of conjugates using Diphtheria Toxoid (DT) as the carrier protein. The conjugates are currently undergoing preclinical evaluation.
Conclusion: We have developed a high yielding and efficient technologies for Vi and OSP production and for conjugation to these polysaccharides to DT. Our aim is to develop a cost effective bivalent conjugate vaccine for developing countries.
This work was funded by the governments of Korea and Sweden.

OL-073 Evaluation of serum concentration of endothelium nitric oxide synthase in *Helicobacter pylori* positive people

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Objectives: Endothelium nitric oxide synthase (eNOS) is a type of enzyme which produces a endogenous factor called nitric oxide. NO plays important role in progress of euplastic diseases. In chronic gastritis induced by *Helicobacter pylori*, the production of NO enhances and damages DNA. The aim of present study is to evaluate eNOS concentration in serum of healthy people and those infected by HP.
Methods: The serums and stools of 84 voluntaries were collected which %58.3 of them were women. HP antigen in stool samples and serum concentration of eNOS were determined using proper ELISA kits. Obtained data were analyzed using Excell software.
Results: 16.6%, 29.76% and 53.57% of collected samples were equivocal, HP negative and positive respectively. Comparison of serums concentration of eNOS showed that there is no significant change among these three groups.
Discussion: As mentioned in results the eNOS serums concentration shows no significant change in HP positive and negative groups. Albeit the other studies showed the significant increase in serum concentration of HP positive patient, this contradiction may arise from race and HP pathogenic slands such as VacA and CagA differences. We propose to conduct a similar study in Ardabil with special regard to pathogenic islands.

OL-074 Prevalence of *Helicobacter pylori* infection and occurrence of gastric cancer in Northeast China

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Background: Although the incidence of stomach adenocarcinoma has declined in the industrialized world, gastric cancer is still one of the major malignant tumors in Northeast China. The aim of this study was to explore the distribution of *Helicobacter pylori* (*H. pylori*) infection and atrophic gastritis in heath controls and gastric cancer patients and their role in gastric carcinogenesis in Northeast China.
Methods: A total of 1072 healthy controls attending the physical examination center and 416 histologically confirmed gastric cancer patients hospitalizing for surgical operation at JiLin University, from August 2008 to December 2010, were included in this study. The IgG antibody titers of *H. pylori* and levels of pepsinogen I (PGI) and II (PGII) in serum of the subjects were measured using ELISA kits.
Result: The rate of positive *H. pylori* IgG antibody titers was significantly higher in gastric cancer groups than that in healthy control groups. (70.7% verse 52.4%, $P < 0.0001$) The atrophic gastritis was more likely to be diagnosed in gastric cancer groups than those in the control groups (32.0% verse 10.4%, $P < 0.001$). More subjects with *H. pylori* infection had lower ratio of PGI and PGII (ratio$\leqslant$6.05; 39.4% verse 4.5%, $P < 0.0001$) and atrophic gastritis (15.0% verse 5.3%, $P < 0.001$) than those without *H. pylori* infection in the control groups. In addition to *H. pylori* infection and atrophic gastritis, multivariate logistic analysis suggested that male gender, elder age were also associated with gastric cancer.
Conclusion: Our results indicating that the higher prevalence of *H. pylori* infection in gastric cancer patients in Northeast China. *H. pylori* infection is a much stronger risk factor for stomach adenocarcinoma. The study also confirmed that *H. pylori* infection were associated with atrophic gastritis, both *H. pylori* infection and atrophic gastritis were linked to the risk for gastric carcinogenesis.
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OL-075 Rotavirus infection in Mongolian children

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Introduction: Rotavirus infection (RV) wide spread in Mongolia as other's world. But, in Mongolia not conducted any study on rotavirus infection.
Objective: To study the incidence clinical picture and molecular feature of RV infection in Mongolia.
Method and Patients: We were observed 950 children under 5 years old (male 559), who was randomly selected patients with acute gastroenteritis from Sukhbaatar district's Hospital in Ulaanbaatar from April 2009 to July 2010. In stool of all studied children detected antigen of RV (RV-Ag) by ELISA (DAKO). In positive samples detected genotype of RV by RT-PCR.

Results: RV-Ag detected in 394 (41.5%) children. 187 (47.5%) of them was children 6–11 months age. 131 of them only admitted September-October 2010.
The clinical picture of RV and non RV infection almost similar. Serious severe dehydration occurs 3%, manifested dehydration 80% of whole patients. In 60% of samples for genotype detected G2P4.
Conclusion: In Mongolia RV infection is wide spread among children, in particularly in children under 1 year old. Clinical picture of RV infection is similar to another acute diarrheal infection. In Mongolia mostly occurs G2P4 genotype.

OL-076 A two year follow-up clinical study on 20 hand foot and mouth disease (HFMD) children with acute flaccid paralysis

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Background: To investigate the clinical characteristics and effective therapy of AFP by two years' follow-up study, 20 HFMD infants and children with AFP were enrolled in Beijing in 2008.
Methods: At acute stage and in two years' follow-up, the clinical manifestations and MRI findings were investigated.
Results: Of 20 patients, 11 cases (55%) got recovery and 9 cases (45%) were left with AFP sequelae. Recovery probable came on those cases with age of less than six-month, a single lower limb, or the spinal cord lesions of less than one or two vertebrae levels on the waist. Joint activities obstacles, slight deformity of the joint, muscular atrophy can be seen in severe AFP sequelae cases. MRI findings at follow-up revealed that lesions were mostly unreadable which at acute stage were found in the brain stem and/or in the anterior horn of spinal cord.
Conclusions: 9 cases (45%) were left with AFP sequelae. Lesions of the spinal cord will lead to AFP sequela which is associated with the length of the lesions. MRI at acute stage can be helpful in the evaluation and prediction of HFMD. The early rehabilitative treatment under the guidance of experts can minimizes the possibility of AFP sequelae.

OL-077 Comparison of clinical features of severe hand foot and mouth disease infected by Coxsackievirus and enterovirus 71

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Objective: To compare the clinical character of severe hand foot and mouth disease (HFMD) infected by Coxsackievirus (COX) and enterovirus 71 (EV71).
Methods: A total of 156 hospitalized patients (96 with Cox infection and 60 with EV71 infection) of severe HFMD from August 2007 to December 2010 in the third people's hospital of Nantong were enrolled in this study. Patients' demographics, clinical manifestations and results of laboratory examination for these patients were collected and compared.
Results: Compared with patients with EV71 infection, Patients with COX infection had a significantly longer hospitalization period, higher male ratio and lower age ($P < 0.001$), the maximum temperature is higher and the heart rate is faster ($P < 0.005$). The proportion of salivation, diarrhea, mouth ulcer is also higher ($P < 0.05$), while fewer cases of sleepiness symptoms or atypical rash occurred in patients with Cox infection ($P < 0.05$). There was no difference in Other symptoms, such as duration of fever, cough, vomiting, startle ($P > 0.05$). Both Cox and EV71 can cause brain stem encephalitis and meningoencephalitis, and both of which can also occur in one patient with EV71 infection at same time ($P < 0.05$). The level of lactate dehydrogenase, creatine kinase, aspartate aminotransferase, blood glucose, C-reactive protein was higher in patients with Cox infection than with EV71 infection ($P < 0.05$), while there was no significant difference in the level of white blood cell count, neutrophil ratios, platelet, Alanine aminotransferase between patients with Cox infection and with EV71 infection ($P > 0.05$).
Conclusion: Both COX and EV71 can cause severe HFMD. The general clinical manifestation caused by COX was more serious, but the clinical manifestation of central nerve system of patients with EV71 infection was on contrary.

OL-078 Epidemiological study and clinical analysis of 849 patients with hand foot and mouth disease

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Background: Hand, foot and mouth disease (HFMD) is a human syndrome caused by intestinal viruses of the Picornaviridae family. The most common strains causing HFMD are Coxsackie A virus and Enterovirus 71 (EV-71). To discuss epidemiological and clinical character of 849 patients with hand foot and mouth disease in the 1st hospital of Jilin University and to summarize the experience of the diagnosis and treatment.
Method: Epidemiological and clinical data of the hand foot and mouth disease patients was summarized and analyzed.
Result: Most of the HFMD cases were children under under 5 years old (97.29%), the percentage of patients under 3 years old is 87.28%. The ratio between male and female cases was 1.43:1, the incidence rate of male was significantly higher than the female. HFMD were appeard from April to December, the peak incidence occurred in July to September. In the cases with laboratory diagnosis, EV71 accounted for 45.08%, CoxA16 accounted for 38.34%. All deaths were infected by EV71.
Conclusion: Prevention and control should be strengthed in the epidemic season. Early diagnosis and early treatment is necessary.

OL-079 Clinical feature of 36 critical cases of hand foot and mouth disease

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Objective: To study the clinical characteristics of critical cases of hand foot and mouth disease (HFMD) in recent years.
Methods: 36 critical cases of HFMD admitted to the Xi'an Children's Hospital and the Northwest Hospital from January 2008 to October 2010 were investigated.
Results: (1) 91.7% of the critical HFMD patients were below 3 years old and 58.3% of cases occurred in May–July. (2) 36 critical cases show clinical manifestation: 100% had rash, 97.2% had fever, 83.3% had pulmonary rales, 75% had vomiting, 47.2% had myoclonus and positive pathologic reflex, 36.1% occured shock. (3) Laboratory findings: 94.4% of patients were infected by EV71, 78.3% of cases combined influenza virus, 71.9% of patients had leucocytosis, 68.6% of patients had hyperglycaemia. In the 19 fatal cases, we found hyperglycaemia (92.9%), pulmonary edema (83.3%) and leucocytosis (81.3%).